



The STS-56 mission is chronicled with on-board photography of the crew. Photos on Page 3.



About 900 students recently visited JSC as guests of the Society of Hispanic Professional Engineers. Story on Page 4.

# Space News Roundup

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No. 16



Paul Weitz

## JSC execs earn highest honors

Weitz, Pohl receive Distinguished Executive Awards

Eight of JSC's top managers this month received the country's highest awards—the 1992 Presidential Rank Awards—for sustained career accomplishments.

Both JSC Deputy Director Paul J. Weitz and Technical Assistant for Space Station Redesign Henry O. Pohl received Distinguished Executive Awards for their "extraordinary" service to the country. The award is presented to only 1 percent of the government's career senior executive

service leaders each year.

Public Affairs Director Harold S. Stall, Mission Operations Deputy Director John W. O'Neill, Associate Director of Engineering Elric N. McHenry, Assistant Director of Engineering John W. Aaron, Mission Operations Director Eugene F. Kranz and Space Shuttle Program Director Leonard S. Nicholson all received Meritorious Executive Awards for their sustained accomplishments. The award is presented to 5 percent

of the career SES civil servants annually.

NASA Administrator Daniel S. Goldin presented the awards April 13 at the annual NASA dinner, held this year at Bolling Air Force Base near Washington, D.C.

Weitz was honored for contributing to the Apollo, Skylab, space shuttle and space station programs during his 25-year NASA career, which started with his selection as an astro-

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Henry Pohl

## Space station Avionics Office reorganizes

The Space Station Projects Office's Avionics Office was reorganized this past week to facilitate avionics integration for the Space Station *Freedom* Program, as well as avionics hardware and software development within the JSC Work Package 2 contract.

Space Station Projects Manager Jack Boykin said the office, led by Manager Elric McHenry and Deputy Manager Virginia Whitelaw, will consist of four branches and a number of office staff positions.

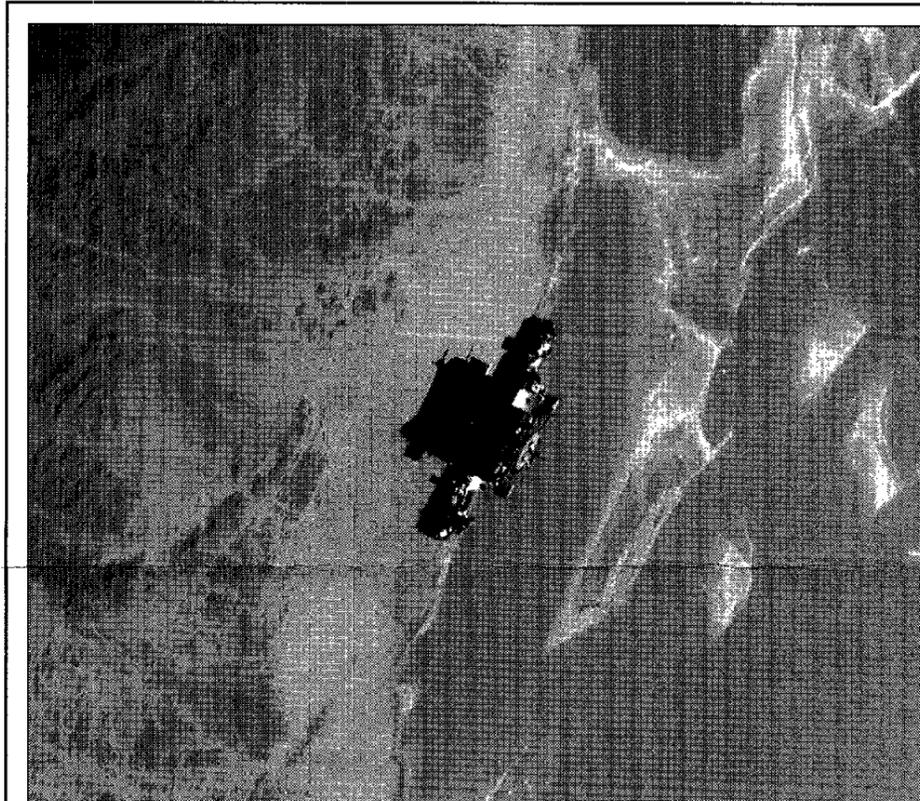
The Avionics Systems Engineering Office, led by Virginia Whitelaw, will be responsible for station avionics system and software architecture. The Avionics Development Office, led by McHenry, will control avionics hardware and software development, integration and verification. The Avionics Integration and Verification Office, led by John Dolan, will guide avionics integration, verification and release. The Avionics Support Systems Office, led by Carlos Parra, will manage development, deployment and operation of ground support tools and facilities needed for software development.

Gordon Ducote will continue as manager for schedules and plans, developing integrated avionics schedules and coordinating review activities and milestones.

Michael Gremillion is appointed manager for international integration, developing, coordinating and negotiating interfaces, architectures, development and verification plans and schedules with NASA's international partners.

Judy Kersey, on temporary assignment from Kennedy Space Center, will manage the Work Package 2 KSC avionics interfaces, ground systems equipment and test approaches needed to ensure a successful transition of flight articles

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NASA Photo

**FREE FLYING**—SPARTAN-201 orbits the Earth with the Red Sea and the coast of Sudan in the background. The free-flying satellite was released from *Discovery's* cargo bay to spend two days studying the Sun's corona and the solar wind as part of the Atmospheric Laboratory for Science and Applications-2 mission. STS-56 Mission Specialist Ellen Ochoa used *Discovery's* robot arm to deploy SPARTAN, and after Commander Ken Cameron maneuvered the shuttle within range of the 50-foot-long arm, she retrieved the satellite. All of SPARTAN's data was recorded on-board for post-mission analysis.

## Spacelab D-2 eyes robotics, life sciences

By James Hartsfield

With *Discovery* freshly cleared from the runway, the term "spaceport" took on true meaning for the Kennedy Space Center as the countdown clock for *Columbia* began ticking Wednesday toward a Saturday launch—the shortest time ever between shuttle flights.

The weather forecast was favorable for *Columbia's* launch Saturday at 9:52 a.m. CDT on STS-55.

The crew for the second United States-German Spacelab flight, Spacelab D2—Commander Steve Nagel, Pilot Tom Henricks, Mission Specialists Jerry Ross, Charlie Precourt and Bernard Harris, and German Space Agency Payload Specialists Ulrich Walter and Hans Schlegel—flew to KSC on Wednesday morning in preparation for the liftoff.

Spacelab will house experiments in materials processing, life sciences and robotics, among other investigations. Operations aboard *Columbia* will continue around the clock in orbit, with Nagel, Henricks, Ross and Walter on one 12-hour shift and Precourt, Harris and Schlegel on another.

*Discovery*, which made a smooth landing April 17 after being held in orbit for an extra day, was inside the processing hangar with removal of the Atmo-

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## More ozone-destroying chlorine in Arctic this year

Ozone-destroying forms of chlorine existed for much longer in the Arctic stratosphere this winter than last, scientists report.

Northern Hemisphere ozone abundance also was observed to be some 10 percent below that measured during the same period last year, with some regions 20 percent lower.

Using NASA's Upper Atmosphere Research Satellite, Dr. Joe Waters and his colleagues at

NASA's Jet Propulsion Laboratory and Edinburgh University, Scotland, have collected daily maps of ozone and other gases and of temperature in different layers of the stratosphere. One of their most critical measurements is of chlorine monoxide, a form of chlorine that destroys ozone.

Arctic ozone concentrations in the Arctic in a layer about 12 miles high, where most chlorine monoxide was located, decreased by 0.7 percent

per day from mid-February through early March 1993, Waters said. Ozone levels normally increase in this area at this time of the year.

Chlorine already in the stratosphere, from chlorofluorocarbons, is converted to ozone-destroying forms by chemistry occurring on clouds which form at low temperature.

Last year, the scientists measured an abundance of chlorine monoxide in the Arctic, but the concentrations decreased after the stratosphere

warmed in late January. This winter, the stratosphere remained cold and chlorine monoxide remained abundant through early March.

"We do not see a well-defined area of ozone loss that could be described as an Arctic ozone hole," Waters said, "but the smaller abundance of ozone seen throughout the Northern Hemisphere this winter raises the question of whether the chlorine destruction of ozone has been spread over a wider area."

## Mission creates crew, support team bond

Fresh from the latest journey on NASA's Mission to Planet Earth, the astronauts of *Discovery* returned home last Saturday to a heartfelt greeting by family, friends and coworkers at Ellington Field.

Commander Ken Cameron, Pilot Steve Oswald and Mission Specialists Ellen Ochoa, Mike Foale and Ken Cockrell landed at 6:37 a.m. CDT April 17 at Kennedy Space Center in Florida. The eight-day Atmospheric Laboratory for Applications and Science-2 mission was stretched to nine when inclement weather prevented a Friday landing.

"We were able to carry out a mission with a completely unique-to-the-world kind of vehicle that combines the ability of manned space operations, deploying payloads and retrieving them, remote sensing and observations," Cameron said. "It's the kind of thing where whether we're the second in a series or the twenty-second in a series that we need to

keep on doing, keep on exploring."

"This mission provides understanding of the atmosphere that will allow us to make this a better place for all human kind," said JSC Director Aaron Cohen.

But the overarching theme of the homecoming was the appreciation of the astronauts for all of the support they received before, during and after the flight back on Earth.

"I know that at 4 o'clock in the morning in Houston, there was always a voice and a group of people out there to take care of just about any problem we had. The whole crew really appreciates the support that made the mission possible," said Cameron.

"I was most fortunate to have the crew you see standing behind me, to have us all work together. It was a real privilege and a pleasure to work with these

Please see **HOME**, Page 4



JSC Photo by Jack Jacob

STS-56 Mission Specialist Ken Cockrell's wife, Joan, and son, Nate, were among the family, friends and coworkers who welcomed home the STS-56 crew last week at Ellington Field.

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# Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays. For more information, call x35350 or x30990.

EAA/JSC Picnic (May 1, Gilruth): adult, \$5; child, \$3; ticket price increases \$1 after April 27. Picnic will feature Barney, James Coney Island, Velcro Wall, Pony Carousel, Petting Zoo and Mr. T.

EAA Galveston Historic Homes Tour (May 1-2 and 8-9): \$11.

Astroworld Early Bird Special — Tickets purchased before May 31 and used before June 30 at \$15.95.

Sea World in San Antonio — Discount tickets: adult, \$19.75; child (3-11), \$13.15.

Fiesta Texas, San Antonio — Discount tickets: adult, \$18.35; child (4-11) \$12.75.

Space Center Houston — Discount tickets: adult, \$7.50; child (3-11) \$4.50; commemorative: \$8.75.

Metro tickets — Passes, books and single tickets available.

Movie discounts — General Cinema, \$4.50; AMC Theater, \$3.75; Loews Theater, \$4.

Houston Rockets Playoffs (7:30 p.m., April 29 or 30, May 1 or 2): \$13.

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# Gilruth Center News

**Sign up policy** — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

**EAA badges** — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday through Friday. Dependents must be between 16 and 23 years old.

**Defensive driving** — Course is offered from 8 a.m.-4:30 p.m. May 15. Cost is \$19.

**Weight Safety** — Required course for employees wishing to use the Gilruth weight room is offered from 8-9:30 p.m. May 5. Pre-registration is required; cost is \$5.

**Aerobics** — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

**Exercise** — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

**Aikido** — Martial arts class meets Tuesdays from 6:15-8 p.m. Cost is \$15 per month.

**Tennis** — Tennis lessons for beginners will be offered Mondays, beginning April 26; intermediate class meets Wednesdays, beginning April 28. All classes meet from 5:15-6:45 p.m. Cost is \$32 for six weeks.

**Almost Anything Goes** — Six-person teams of three men and three women are needed for Almost Anything Goes competition at the May 1 JSC Picnic.

**Fitness program** — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed exercise program. Call Larry Weir, x30301.

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# Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

## Property

Rent: Galv condo, furn, sleeps 6, Seawall & 61st St, cable, wknd/wkly/daily. Magdi Yassa, 333-4760 or 486-0788.

Sale: Friendswood/Regency Estates, 3-2-2, 1.5 story w/game rm, master dn, lg country kitchen, FPL, privacy fence, home warr, \$89.9K. Jim, 482-8800.

Sale: MeadowBend, 1500 sq ft, 3-2-2, lg kitchen, lg living rm, storm windows, cul-de-sac, 4 yrs old, \$84K. 334-2963.

Sale: Park Place Villa Acres, 3-2-2cp, w/1-1 guest house, cent H/AC, hardwood floors, FPL, new roof, lg corner lot, \$67.5K. 649-5029.

Sale: Dickinson Bayou waterfront, 4-2-2-2, pool, 100 yr old trees, WB, FPL, volleyball/ horseshoe setup, \$224K. x34354 or 337-1640.

Sale: MeadowBend, 3-2-2, upgraded carpet, Calif style deck/cover, track lights, custom wallpaper. Brent Romero, 334-1996.

Sale: Colorado, 5 acres, 30 min from Colorado Springs, on hill crest, view of Pikes Peak, eastern plains. Don, 244-8881.

Sale: Pearlard, 4-2-5-2, game rm, formals, sunroom, jacuzzi, marble vanities, 6 ceiling fans, \$104K. Gloria, 480-2771 or 483-7555.

Rent: Lake Travis cabin, private boat dock, cent AC/H, accommodates 8, fully equipped, \$325/425 wkly, \$90 daily. 474-4922.

Rent: Orlando, 2 BR condo, full kitchen, sleeps 8, Epcot entrance at Hwy 4, June 13-20, \$500 OBO. Phil, x47346 or 538-1665.

Lease: CLC, 1 BR condo, W/D conn, FPL, storage, micro, exercise rm, tennis, avail before May 1. Jim Briley, x44632 or 488-7901.

Sale: 3-2-2 contemporary, FPL, game room, loft, trees, boat slip, low \$120's. 538-1849.

Sale: 4-3-2D, lg wooded lot, park boat/MH, extra lg master BR, kitchen has Jennaire/bread warmer, ceramic tile, \$122.5K. Shirley, 335-1607 or 335-0641.

## Cars & Trucks

'84 Toyota Supra, pwr sunroof, Clifford alarm, 91K mi, \$4.4K. Michael, x30993 or 333-1856.

'87 Ford Escort GT, silver w/blk, ex cond, new tires, 5 spd, 2.8HO, elec fuel injec, super sound, \$2.1K. Slayton, x56221 or 436-9916.

'71 Chevy Nova, V8, orig owner, \$4.5K. 480-1998.

'88 Holiday Alumalite, 35' MH, 29k mi, 454 Chevy, 6.5 Onan gen, 2 roof ACs, hydraulic leveling jack, rear qn bed, sleeps 7, new tires, \$32K negotiable. Joe, x36508 or 337-3696.

'78 Volkswagen Rabbit, diesel, runs, fair cond, \$1.2K; camper top, maroon, old but ex cond, fits long wheel base PU, \$500. x48511 or 644-0331.

'90 Lincoln TC, wht/gray, loaded, car phone, low miles, \$18.9K; '91 Jeep Renegade, hardtop, AC, loaded, red/blk, ex cond, 12K mi, \$15.9K. Tom, x41119 or 534-4958.

'83 Volvo GLE turbo, 5 spd, 2 DR, silver/blue, AM/FM/cass, good cond, \$2.2K OBO. 474-4132.

'78 Mercedes 250, green, 250K mi, runs, needs some work, \$2K OBO. 337-5976 or 337-3697.

## Boats & Planes

'60 Chris Craft Continental 18' mahogany runabout w/tandem trlr, 100% restored, planking refitted and refinished, new uphol, zero hrs, high perf, 327 rebuilt, \$8.6K. 480-2350.

24' '73 Sea Ray, good project boat, eng/outdrive need work, \$2K. 334-2684.

'91 Cajun 1850 Fishmaster, center console, v-hull, shallow draft, '93 Merc 135, PT&T, ss prop, trolling motor, 40 gal fuel tank, 3 batt, 72 qt Igloo, aerated baitbox, \$11K. Gary, 534-3080.

'93 170 Invader, reef funner, center console, 60 hp Merc w/PT&T, Sportsman gal trlr, \$7.8K. 534-6110.

17' canoe, fiberglass w/oars, life jckts, \$150; Minn Kota 35m elec trolling motor, 17 lb thrust, \$65; Wards signature 20 refrig, side x side, compressor works, out of freon, \$30. Todd, x31491 or 992-4693.

Super Snark sailboat, red/wht, good for kids/beginner, \$225 OBO. Paul, x38933 or 332-2915.

'90 Kawasaki 650 sx jet ski, runs great, dbl trlr, \$3.5K. Andy, x48523 or 334-4988.

## Cycles

'88 Hurricane, 18K mi, \$2.7K OBO. x34204 or 480-2954.

'86 Honda Shadow, blk/chrome, all options, 7K mi, new Fulmer helmet, used helmet, new Gazebo cover, \$3K. Keith, x35190 or 332-5170.

Moto-X equipment, Bieffe JBX-6 helmet, Scott goggles, O'Neal ultra-lite pants, Hallman chest protector, AXO belt JT gloves, Alpinestar boots, Honda colors, \$350. Bob, 996-6714.

'91 Suzuki GSXR 1100, 5.2K mi, ex cond, matching leather jacket, \$6750 nego. Steve, 488-5920 x 374 or 585-6789.

## Audiovisual & Computers

Mac SE, 4 MB memory, 40 MB HD, \$850. 488-7771.

Lg computer tbl w/woodgrain top,

JSC

# Dates & Data

## Today

**Toastmasters meet** — The Spaceland Toastmasters Club will hold its quarterly evening meeting at 6:30 p.m. April 26 at Mario's Flying Pizza. For more information, call Jim Morrison at 480-9793.

**Cafeteria menu** — Special: meatballs and spaghetti. Entrees: wiensers and beans, round steak with hash browns. Soup: chicken noodle. Vegetables: okra and tomatoes, carrots, whipped potatoes.

## Tuesday

**Blood drive** — Grumman will sponsor a blood drive from 8 to 11:30 a.m. April 27 in the parking lot at 12000 Aerospace. For more information, contact Freddie Ann Marcussen at 929-7123.

**Cafeteria menu** — Special: fried chicken. Entrees: beef stew, shrimp Creole, sweet and sour pork chop with fried rice. Soup: beef and barley. Vegetables: stewed tomatoes, mixed vegetables, broccoli.

## Wednesday

**NMA meets** — The JSC chapter of the National Management Association will meet at 5 p.m. April 28 in the Gilruth Center. members will discuss long-range planning at JSC. Members should contact their boosters and non-members should call Allison Kruest at x47115.

**Astronomy seminar** — The JSC Astronomy Seminar will feature an open discussion meeting at noon April 28 in Bldg. 31, Rm. 129. For more information, call Al Jackson at 333-7679.

**Freedom Fighters meet** — The Space Station Freedom Fighters will meet at noon and 5 p.m. April 28 in Rm. 526 of the McDonnell Douglas Tower, Space Center Blvd. and Bay Area Blvd. For more information, call David Cochran at 482-7005.

**Cafeteria menu** — Special: Swiss steak. Entrees: fried perch, New England dinner. Soup: seafood gumbo. Vegetables: Italian green beans, cabbage, carrots.

## Thursday

**AIAA meets** — The American Institute of Aeronautics and Astronautics will meet at 5:30 p.m. April 29 at the Gilruth Center. Ben Rich, past present of Lockheed Advanced Development Co., will discuss "Operation Skunk Works." Cost is \$9 for members, \$10 for non-members and \$8 for students. Dinner reservations are due by noon April 26; call 333-6064, 283-1040, x31350 or 282-3160.

**SOLE meets** — The Houston chapter of the Society of Logistics Engineers will meet at 5:30 p.m. April 29 at South Shore Harbour Country Club. Jim Van Laak, Richard McKeel and Kevin Watson will present "A Review of the 5th Space Station Logistics Symposium Papers: Part 4." Dinner is \$8 For more information, call Dennis Wise at x33661.

**AFCEA meets** — The Armed Forces Communications and Electronics Association will meet at 11:30 a.m. April 29 at Lakewood Yacht Club. Dale Compton, director of NASA's Ames Research Center, will discuss "Scientific Visualization."

Cost is \$12 for members, \$14 for nonmembers; reservations are due April 27.

**Cafeteria menu** — Special: stuffed bell pepper. Entrees: turkey and dressing, enchiladas with chili, wiensers and baked beans. Soup: cream of chicken. Vegetables: zucchini squash, English peas, rice.

## Friday

**Cafeteria menu** — Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower au gratin, mixed vegetables, buttered cabbage, whipped potatoes.

## Saturday

**Call for papers** — Technology 2003, the fourth national technology transfer conference and exposition, is seeking abstracts for papers to be presented at the Dec. 7-9, 1993 convention in Anaheim, Calif. Abstracts 1 to 1 1/2 pages long are due May 1. Send abstracts to Leonard Ault, Technology 2003, Code CU, NASA Headquarters, or fax them to 202-358-3938. For more information, call Ault at 202-358-0721 or Wendy Janiel at 212-490-3999.

## Sunday

**Choral concert** — The Bay Area Chorus will present a concert at 4 p.m. May 2 at Clear Lake Presbyterian Church, 1511 El Dorado Blvd. Cost is \$8 for adults, \$5 for students and senior citizens; proceeds support the Bay Area Chorus Scholarship Fund. For more information, call 684-6030.

recessed kybd platform, attached storage cabinet, was \$200, now \$85. x48580.

Nintendo game sys, 2 controllers, light gun, 3 games, \$100 OBO, ex cond. J.R. x38489 or 486-5503.

Amber mono monitor, \$20; CGA/MDA/Hercules cards, \$5. Gary, x48147 or 337-4770.

Amiga 500 computer, 1 MB int memory, 2 MB mem expansion, 1084 color monitor, ext 3.5 FD, 2 joysticks, mouse, books, \$350 s/w, ex cond, \$600. x30210 or 333-9242.

IBM XT clone, 64K RAM, 40 MB HD, CGA card, amber monitor, 1200 baud int modem, \$400 OBO. x45050.

## Photographic

Nicon FG-20 body, Nicon 50mm 1.8 lens, Sakar 80-200mm lens, Toyo 28-135 lens, Vivitar 285 HV elec flash, case, \$475 OBO. Dave, x37058 or 860-0736.

## Pets & Livestock

Free, cat, shots/fixd, female gray long hair, 4 yrs old, male, yellow medium hair, 2.5 yrs old. Sue, x33725 or 333-4394.

Chocolate, AKC registered, lab retriever pups. Gary, x37896 or 333-2751.

## Musical Instruments

Yamaha elec kybd, 2.5 octaves, memory, orchestra, rhythm, batt capability, \$50 OBO. 941-2495.

## Lost & Found

Lost gold tie chain in bldg 1 on March 31, please return, sentimental value. 929-7323.

## Household

Traditional country blue sofa, \$250; bentwood rocker, \$10; FPL screen w/winged glass doors, \$15; 42" ceiling fan w/schoolhouse light kit, \$10. Catherine, x37061 or 286-3560.

Love seat, \$75; chair, \$35; country blue design, both \$100; 2 wood plant stands, \$35; wood stove, \$100; jelly cupboard, \$225; pine cabinet for tv, \$350; pine cabinet, \$275; red desk, \$130, 6 ladderback chairs, \$100; rocking chair, \$125; farmers tbl, \$175; assorted ladderback chairs, \$20. 996-1442.

2 solid white-washed oak shelf units w/drawer and doors, heavy, ex cond, \$125/ea. Jerry, x38922 or 488-5307.

4 pc rattan set, 2 chairs, couch, glass top tbl, floral cushions, \$200 OBO. Sue, x33725 or 333-4394.

Contemp white washed tbl, 5 chairs, mauve cushions, was \$900, now \$350. 482-1505.

Magic Chef washer, \$150; Whirlpool elec dryer, \$150, ex cond. Joe, 335-2506.

Kg sz 4 poster waterbed, \$150; Super single w/bookcase hdbd, \$150. x48511 or 996-8939.

Tbl w/ leaf, 6 chairs, tall backed, padded seat, cream uphol, 1 of 6 chairs is armed,

sturdy solid wood, \$250. Becky, x48094 or x35516.

French Provincial sofa, Fruitwood, beige, \$350. 282-4849 or 941-3262.

Stereo cabinet, teak, oriental custom design, 8' long, \$100. 488-8493.

Rd formica top/bamboo base 34" tbl, \$50; pair chairs, cushioned, \$60 both; tv tbl, \$10; metal storage cabinet, \$10; flashing sign, \$15. 488-5564.

Tappan full sz microwave w/built-in turntable, removable rack, \$125. Annie, x47514 or 478-4033.

Craftmatic kg sz adjustable bed w/vibrator/heat, 2 yrs old, ex cond, was \$3.4K, now \$1250 OBO. Jeff, x41132 or 286-2060.

5 pc sectional w/rocker/recliner, green w/mauve/gray pin stripping, 1.5 yrs old, \$1250; 26.6 cu ft GE refrig w/black face, 1.5 yrs old, \$1150. x41119 or 534-4958.

Solid oak tbl, 5 chairs, parquet top w/2 leaves expands to 8', \$350. Jackie, x36474.

## Wanted

Want students to join Russian language class, intermediate/beginner level, 6 mos - 2 yrs exp. Rick, x47373 or Keith, x38024.

Want 4 head VCR w/remote control; blk wood entertainment stand. Craig, x47434 or 946-6710.

Want roommate to share 3-2-2 in LC, privacy, \$290/mo + 1/2 util, avail immediately. Sharon, x33019 or 554-6741.

Want brush hog or finishing mower, blade, post hole digger for Ford 8N tractor, 3 point hitch. Ken, x30921 or 554-6504.

Want van pool riders, Meterpark to NASA. D. Pipkins, x35346.

Want baby crib, mattress, highchair, car seat, 20 lbs & over. Valerie, x49691.

Want used golf clubs, need irons only, name brand quality, must be stiff shaft. Mike, 486-4975.

Want 2 childrens bicycles, boys, ages 5 and 7. Andy, 332-9105.

Want nonsmoking male housemate, MeadowBend, 3-2-2, \$300/mo, 1/2 util, avail 4-1-93. Frank, x30696 or 334-1846.

Want teenage babysitter for 5 and 8 yr old, responsible, own transportation, if not nego. R. Jones, x33750 or 286-1655.

Want payload/experiment patches/decals from STS-44; Terra Scout; STS-52 Lageos-II, USMP-1, Canex; STS-53 DOD 1, Oderacs, Hercules, STS-54 TDRS-6, DXS. Andrew, 280-0647.

## Miscellaneous

Roofing shovel, \$9; hammer tacker, \$19; 14" turbine vents, \$9; spade fork, \$10; PU bed trlr, \$200; mower, \$40. x35092 or 944-2391.

Hand lawnmower, \$30; barometer w/humidity/temp gages; red child's wagon, \$30; briefcase, \$30; handmade Peruvian wall hanging w/woven in figures, \$60. 488-5564.

Nishiki ladies bike, sm frame, 10 spd, 20

ysr old, heavy, good cond; Toro, 20" self propelled lawnmower, side discharge, good cond. Bob Adams, x32567 or 488-3314.

Four 14x6.5 6 lug chrome wheels, \$200. Craig, x47434 or 946-6710.

4' sq tinted, tempered, 1 pc glass picture window w/bronze alum frame, \$50. Jerry, x38922 or 488-5307.

Popup camper tent w/add-a-room, \$875. Wayne, 996-9157.

Cricketeer sportcoat, sz 38, tan, was \$150, now \$35. 482-5837.

Smith and Wesson 357 magnum, model 586, \$290. John, x36956 or 332-1570.

Pull type golf cart, ex cond, \$25. 488-8493.

Sears camping equipment, pak-a-potti V, self contained camping toilet, \$75; 2 burner propane camping stove, \$25; dbl calendered vinyl coated nylon, qn sz air matt, \$18. 326-2186.

Coffee tbl, \$12; floor lamp, \$20; trlr hitch, \$25; radio w/detachable spkrs, \$30; Barbie dolls, Hawaiian, \$20; Sun Gold Malibu, \$15. 488-6521.

Off wht wedding gown, decorated w/pearl beads, sequins, lace back w/pearl buttons, chapel length train, fits sz 6-8, was \$900, now \$400. Laura, 335-2388 or 532-1557.

Panasonic phone answering machine, dual cass w/time/date stamp, \$30. x37521.

Brwn coffee grinder, grinds up to 12 cups, measuring lid, cov'd storage, safety switch, \$12. x34952.

Medical type lounge chair, used for dialysis treatment. E. Rubenstein, x34807 or 532-2211.

Ruger mini-14, 223 cal w/3x by 9x scope, \$350. x35201 or 489-7182.

Prom dresses, several styles, sz 3-7, Southwest style pictures, \$10-20. Jo Lynn, 941-4307.

Air conditioning unit, 18,000 BTU/hr, 220 vac, Sears, \$195; printer, Apple Imagewriter wide carriage, \$150. 326-5150.

Smith Corona SL 80 typewriter, ex cond, \$60. Gene, x33016 or 534-2372.

Bedliner for Ford pickup, full sz. 992-5724.

Kubota L2550, 148 hrs, 5' disk, 5' box blade, 52" Kubota roto-tiller, post hole digger w/9" and 12" Augers, 16" Tandem drive-on tilt trlr w/brakes, \$11K. 471-4100.

Bicycle, stationary trainer, fits all cycles, Jetta, \$65. Tim, x36370 or 859-8773.

# Science Bonanza



**N**ine days of science operations kept the crew of *Discovery* busy almost 24-hours-a-day during the recent STS-56 Atmospheric Laboratory for Applications and Science-2 mission.

Clockwise from top:  
 1) The STS-56 crew, from left (front) Commander Ken Cameron and Mission Specialist Mike Foale, and (back) Mission Specialist Ellen Ochoa, Pilot Steve Oswald and Mission Specialist Ken Cockrell, assemble on the shuttle's aft flight deck for the traditional in-flight crew portrait.

2) Cameron prepares to remove a camera from its stowage bag as part of the crew's continuing effort to document the mission on film. He's wearing a headband with a small flashlight attached.

3) Ochoa checks out a 35mm camera in the aft flight deck area, which is cluttered with cables, laptop computers and other equipment used for experiments that complemented the ATLAS-2 instruments in the payload bay.

4) Foale, call letters KB5UAC, talks to amateur radio operators on Earth by way of the Shuttle Amateur Radio Experiment. Foale made the first-ever spacecraft-to-spacecraft contact with the Russian Mir space station.

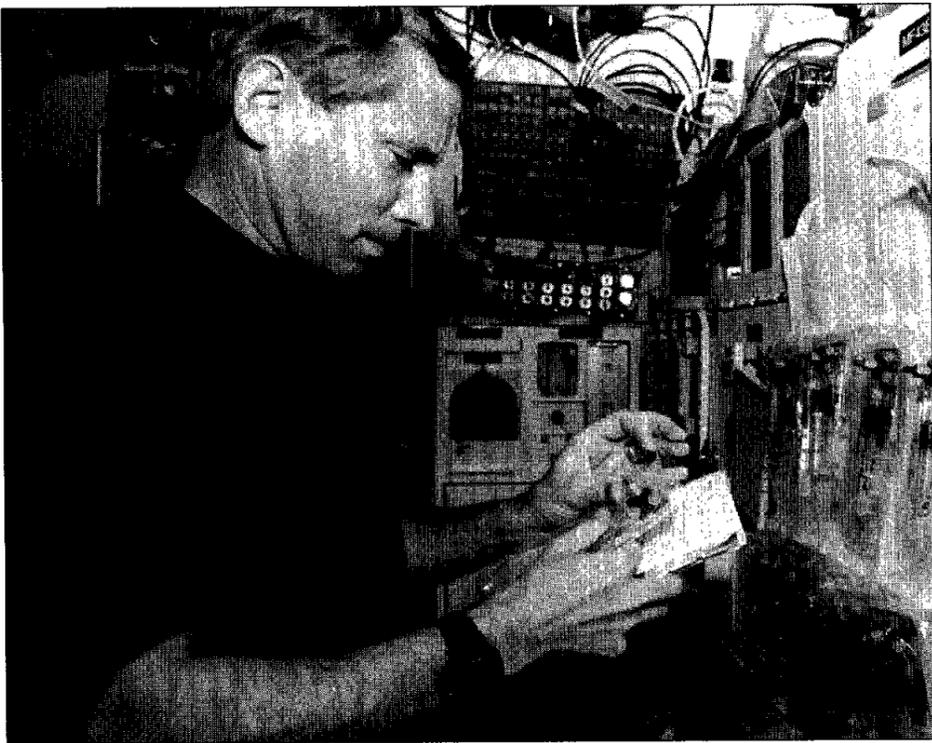
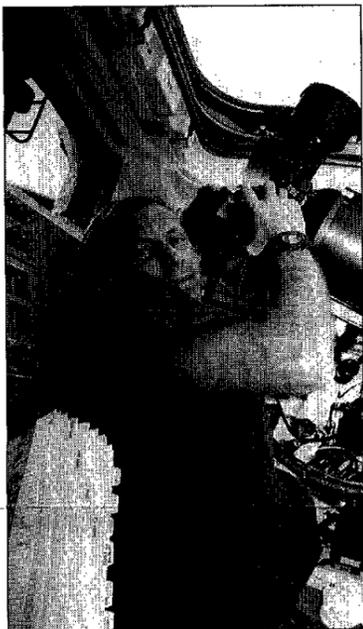
5) Ochoa, who has played the flute for 25 years, takes a brief

time out from a busy day to play a 15-minute set on *Discovery's* aft flight deck. The concert included the Marine Corps Hymn, Navy Hymn and God Save the Queen, for her crewmates as well as some Vivaldi for herself.

6) Oswald, call sign KB5YSR, makes a call using SAREX. The crew made contact with almost 20 schools around the world and received the first spacecraft television of Mission Control.

7) Cockrell works with one of the Bioprocessing Modules of the Commercial MDA ITA Experiments. The BPMs looked at how various compounds affected growth of human immune system cells in microgravity. Once scientists discover how cells respond to these compounds in microgravity, they may be able to develop techniques to select for certain desirable cell types on Earth. That process could be useful in the treatment of cancer.

8) Cockrell prepares to take an Earth-observation photograph using the Hand-Held, Earth-Oriented, Real-Time, Cooperative, User-Friendly, Location-Targeting and Environmental System camera, which mates a modified 35mm electronic still camera with an inertial measurement unit and appends precise longitude and latitude information to each image. □



# JSC leaders earn country's top executive accolades

(Continued from Page 1)

naut in 1966. After succeeding in a number of management assignments, he became JSC's deputy director in 1986, and has contributed to critical efforts including the Challenger accident recovery, resolution of technical problems related to continuing shuttle flights and overall day-to-day management of the center.

Pohl, nominated while serving as JSC's director of engineering, was recognized for 35 years of service to NASA, which began when he was selected to join the small team of rocket systems experts led by Dr. Wernher von Braun at the U.S. Army Ballistic Missile Agency (now Marshall Space Flight Center).

Joining the Manned Spacecraft Center (now JSC) in 1962, Pohl made significant contributions to the success of the Mercury spacecraft as leader of the auxiliary propulsion group, then moved into management positions, serv-

ing as chief of the Auxiliary Propulsion Section and the Systems Branch, where he directed the design, development and testing of the Mercury, Gemini, Apollo, Apollo-Soyuz, Skylab and space shuttle auxiliary propulsion systems. He also led development of the hydrazine-powered, turbine-driven auxiliary power units used by the space shuttle.

Pohl became NASA's chief of propulsion and power in 1980, and assumed the job of engineering director in 1986, providing "people-oriented" leadership during the difficult period following the *Challenger* explosion.

Aaron's 27-year career was marked by widespread recognition for his efforts during the Apollo 12 mission when, after the spacecraft was hit by lightning during launch he used real-time analysis to rapidly reconfigure the Command and Service Module electrical power system so the mission could continue.

Kranz is an internationally recognized expert in space flight operations and one of NASA's premier leaders, with 31 years of experience planning, directing and managing space flight operations activities. He was lead flight director during the Apollo 11 lunar landing mission, and took charge following the Apollo 13 explosion.

McHenry joined JSC in 1963 and established a reputation as an international expert in rendezvous analysis and proximity operation strategies that were instrumental in the success of the Apollo missions.

Nicholson, who joined JSC in 1963, was honored for his leadership of the design, analysis, manufacture, test and integration of the space shuttle flight and ground systems, as well as for day-to-day management of the Space Shuttle Program including planning, scheduling, configuration management and systems engineering.

O'Neill has spent 28 years becoming one of NASA's foremost experts in manned flight operations and performs additional duties as the leader of JSC's strategic planning efforts in support of Total Quality Management initiatives.

Stall has directed one of the most complex public affairs programs in the government which is the primary source of all information associated with manned space flight activities since 1975. He has led public affairs through the Apollo/Soyuz Test Project mission and the Space Shuttle Program, and worked with JSC management and NASA Headquarters public affairs to forge NASA Select television.

He also serves as president of the Manned Space Flight Education Foundation and was the driving force behind the development of Space Center Houston, the new \$70 million visitor center.

## Avionics Office changes shape

(Continued from Page 1)

into KSC integration and checkout activities.

Walter Marker will manage design and integration, providing expert technical advice to Avionics Office and station management.

Emily Strickler was named manager for software requirements, managing development and baselines for Work Package 2 flight software requirements and chairing the Flight Software Control Board.

## Discovery crew shares credit

(Continued from Page 1)

other four people together as two teams, 24 hours a day, and take care of an orbiter and multiple payloads and do the kind of job you all are counting on us to do."

Foale agreed, saying that the teamwork involved in making a shuttle flight work builds strong bonds among those who work hard together and allows the team to transcend the mistakes that humans make to preserve the integrity of the mission and its scientific objectives.

"Over about a year or so, I have gotten to know many of you, but not all of you," Foale said. "Even though I have become very close to this crew behind me here, I wish I could become as close to some of you as I have to them. Because I know that you have worked just as hard in doing what we did."

Cockrell thanked the training and mission control, hardware and flight design teams, as well as "all good Americans who paid their taxes yesterday to make this flight possible."

"I can't seem to wipe this grin off my face, it was a wonderful flight," Cockrell said.

The crew was one of those really good mixes that "just works together." That and the absence of systems problems on *Discovery* made for a very smooth flight, Oswald said.

"We just had a great time. We had all kinds of things to do up there, we were really busy ... I think you really appreciate when you're up there how many people are helping support you and how hard they're all working."

The STS-56 crew will present an overview of the mission for Space Center Houston visitors at 12:30 p.m. next Monday, and brief JSC colleagues later that day at 3:30 p.m.

## Endeavour scheduled to move to launch pad

(Continued from Page 1)

spheric Laboratory for Applications and Sciences experiments and the Solar Wind Generation Experiments scheduled to begin today. The Solar Ultraviolet Experiment canister was to be removed during the weekend.

Early today, *Endeavour* is scheduled to take the point as it moves to Launch Pad 39B in preparation for an early June liftoff on STS-57. Last week, *Endeavour's* three main engines were installed in the Vehicle Assembly Bldg.



Those who help produce the Telly Award winning productions included, from left (front), Mark Turner, Lora Cole, Jana Walker and Patricia Lowry, Deidra Baker, Rex Ellis and Marco Zambetti; (rear) Dexter Herbert, Kelly Kaufhold, Ray Brown, Emmett Durham, David Tharp, Charles Boehl and Gary Rogers.

## JSC group earns Telly Awards

Awards honor employee, education productions

Taft Broadcasting Co.'s Television Systems Division at JSC recently received high recognition at the 1993 Telly Awards, winning three awards and finishing as a finalist in three other categories.

Founded in 1980, the Telly Awards showcases excellence in non-network commercials and programs, film and video productions. Entries are judged on a 10-point scale with entries receiving a score of 7.0 to 8.9 being finalists and entries scoring 9.0 or higher being winners.

Taft's productions, "Reaching for the Stars," a behind the scenes look at the life of an astronaut, "The Voyage of *Endeavour*, Then and Now," an education piece produced during the maiden voyage of the Space Shuttle *Endeavour*, and "JSC Behind

the Scenes," an employee orientation production, won in the public relations, education and employee communications categories, respectively.

"JSC Behind the Scenes" and "All Systems Go!" an education program on the functioning of the human body, were finalists in the animation category, and "The Physics of Toys," a live physics lesson taught from *Endeavour*, was a finalist in the on-air education category.

Taft, which works under contract to the Center Operations Directorate, worked with Astronauts Susan Helms, Tom Akers and Rick Hieb, JSC Image Sciences Division's Carlos Fontanot and Michael McGuyer, and McDonnell Douglas' Marco Zambetti in the creating the winning productions.

## Hispanic engineers host 900 students at JSC symposium

More than 900 elementary, junior high and high school students attend this month's symposium hosted by the Texas Bay Area chapter of the Society of Hispanic Professional Engineers at JSC.

"The Challenge of Space: A National Space Symposium" included a talk by former Astronaut Dan Brandenstein and presentation of awards to the winners of a "Why I want to Be an Astronaut" essay contest. In addition, a mini-career fair share the possibilities of future space program jobs for enterprising students.

The main goal of the April 1-2 symposium was to increase the interest of students and professionals in the space program.

SHPE was assisted by Bendix, the Advisory Committee of the Clear Lake Area Economic Development Foundation, Hernandez Engineering, Hispanic Engineer, IBM, Lockheed, McDonnell Douglas and Rockwell International.



Two national directors of the Society of Hispanic Professional Engineers register for the recent symposium with Dr. Doug Ming of the Solar System Exploration Division. Student members of the Texas Bay Area chapter of the Society of Hispanic Professional Engineers from Houston Community College helped with the registration.

## Space Center Houston seeks summer help

Space Center Houston will host a recruiting night for summer host and hostess positions from 7-9 p.m. Tuesday.

Employees are asked to encourage enthusiastic, reliable friends of family members to apply for the jobs.

The minimum age for crew members is 17, and all host/hostess positions pay \$5.05 an hour. Representatives for Marriott also will be present, interviewing for fast food cooks and cashiers, positions that pay \$4.75 an hour.

Space Center Houston operates seven days a week, so availability for weekend and holiday work is vital. Qualified summer temporary crew members will begin work around May 22 and work through mid- to late-August.

## Mission Control viewing room, cafeteria hours

The Mission Control Center viewing room will be open to JSC and contractor badged employees and their families during portions of the STS-55 mission.

Based on a Saturday launch, employees will be allowed to visit the MCC Monday, Tuesday, Thursday and Friday, from 11:30 a.m. -2:30 p.m. and 5-7 p.m.; and May 1 and 2, from 1-4 p.m.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30. Children under 5 will not be permitted. No flash photography or loud talking will be permitted at any time. For the latest information on the schedule, call the Employee Information Service at x36765.

The Bldg. 11 cafeteria will be open from 6:30 a.m.-2 p.m. weekdays, except launch and landing days. The Bldg. 3 cafeteria will be open normal hours.

## EAA offers Rockets playoff tickets

The JSC Employee Activities Association has acquired a special block of playoff tickets for the Houston Rockets. The Rockets have almost clinched their National Basketball Association Western Division title and will have the home-court advantage.

Tickets for Round 1, which will be played April 29 or 30, went on sale for \$13 Wednesday in the Bldg. 11 Exchange Store. Tickets for Round 2, to be played May 1 or 2, go on sale for \$1-2 more today. Game time for either round is 7:30 p.m. at the Summit.

For more information, call Mavis Lancen at x49644.

## Child Care Center to elect new board

The JSC Child Care Center is looking for a few good board members.

Nominations are due May 3 for the June 1 election of all five board positions. Forms are available at the Child Care Center, or call Reese at x37776.

## Space News Roundup

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